

SECURITIES AND EXCHANGE COMMISSION  
(Release No. 34-56566; File No. SR-BSE-2007-40)

September 27, 2007

Self-Regulatory Organizations; Boston Stock Exchange, Inc.; Order Granting Approval to a Proposed Rule Change to Extend and Expand the Pilot Program to Quote Certain Options in Pennies

I. Introduction

On August 10, 2007, the Boston Stock Exchange, Inc. (“BSE” or “Exchange”) filed with the Securities and Exchange Commission (“Commission”), pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (“Act”),<sup>1</sup> and Rule 19b-4 thereunder,<sup>2</sup> a proposed rule change to amend the Boston Options Exchange (“BOX”) Rules to extend and expand the pilot program to quote certain options in smaller increments (“Pilot Program” or “Pilot”). The proposed rule change was published for comment in the Federal Register on August 21, 2007.<sup>3</sup> The Commission received two comment letters on the proposed rule change.<sup>4</sup> This order approves the proposed rule change.

II. Description of the Proposal

Currently, the six options exchanges, including BOX, participate in the thirteen class

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<sup>1</sup> 15 U.S.C. 78s(b)(1).

<sup>2</sup> 17 CFR 240.19b-4.

<sup>3</sup> See Securities Exchange Act Release No. 56253 (August 15, 2007), 72 FR 46691.

<sup>4</sup> See letter to Nancy Morris, Secretary, Commission, from John C. Nagel, Director & Associate General Counsel, Citadel, dated September 12, 2007 (“Citadel Letter”) and email from Abraham Kohen, Algorithmic Trading Engineer, dated September 21, 2007 (“Kohen Letter”).

Pilot Program,<sup>5</sup> which is scheduled to expire on September 27, 2007.<sup>6</sup> The Exchange proposes to amend Chapter V, Section 33 of the BOX Rules to extend and expand the Pilot Program to include fifty additional classes, in two phases.

Phase One will begin on September 28, 2007 and will continue for six months, until March 27, 2008. Phase One will add the following twenty-two options classes to the Pilot: SPDRs (SPY); Apple, Inc. (AAPL); Altria Group Inc. (MO); Dendreon Corp. (DNDN); Amgen Inc. (AMGN); Yahoo! Inc. (YHOO); QUALCOMM Inc. (QCOM); General Motors Corporation (GM); Energy Select Sector (XLE); DIAMONDS Trust, Series 1 (DIA); Oil Services HOLDRs (OIH); NYSE Euronext, Inc. (NYX); Cisco Systems, Inc. (CSCO); Financial Select Sector SPDR (XLF); AT&T Inc. (T); Citigroup Inc. (C); Amazon.com Inc. (AMZN); Motorola Inc. (MOT); Research in Motion Ltd. (RIMM); Freeport-McMoRan Copper & Gold Inc. (FCX); ConocoPhillips (COP); and Bristol-Myers Squibb Co. (BMY). These twenty-two options classes are among the most actively-traded, multiply-listed options classes, and account, together with the current thirteen Pilot classes, for approximately 35% of total industry trading volume.<sup>7</sup>

Phase Two will begin on March 28, 2008, and will continue for one year, until March 27, 2009. During the second phase, the number of options classes trading in pennies will again

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<sup>5</sup> The thirteen option classes currently in the Pilot are: Ishares Russell 2000 (IWM); NASDAQ-100 Index Tracking Stock (QQQQ); SemiConductor Holders Trust (SMH); General Electric Company (GE); Advanced Micro Devices, Inc. (AMD), Microsoft Corporation (MSFT); Intel Corporation (INTC); Caterpillar, Inc. (CAT); Whole Foods Market, Inc. (WFMI); Texas Instruments, Inc. (TXN); Flextronics International Ltd. (FLEX); Sun Microsystems, Inc. (JAVA); and Agilent Technologies, Inc. (A).

<sup>6</sup> The Pilot Program began on January 26, 2007 and is currently set to expire on September 27, 2007. See Securities Exchange Act Release No. 56149 (July 26, 2007), 72 FR 42450 (August 2, 2007) (SR-BSE-2007-38). See also Securities Exchange Act Release No. 55155 (January 23, 2007), 72 FR 4741 (February 1, 2007) (SR-BSE-2006-49) (“Original Pilot Program Approval Order”).

<sup>7</sup> This volume is based on the Options Clearing Corporation (“OCC”) year-to-date trading volume data through July 16, 2007.

increase. The Exchange proposes to add twenty-eight more classes from among the most actively-traded, multiply-listed options classes.<sup>8</sup>

The minimum price variation for all classes to be included in the Pilot Program, except for the QQQs, will continue to be \$0.01 for all quotations in option series that are quoted at less than \$3 per contract and \$0.05 for all quotations in option series that are quoted at \$3 per contract or greater. The QQQs will continue to be quoted in \$0.01 increments for all options series.

During the extended and expanded Pilot Program, the Exchange commits to deliver four reports to the Commission. Each report will analyze the impact of penny pricing on market quality and options system capacity. The first report will analyze the penny pilot results from May 1, 2007 through September 27, 2007; the second will analyze the results from September 28, 2007 through January 31, 2008; the third will analyze the results from February 1, 2008 through July 31, 2008; and the fourth and final report will examine the results from August 1, 2008 through January 31, 2009. These reports will be provided to the Commission within thirty days of the conclusion of the reporting period.

### III. Discussion

After careful review of the proposal and the comment letters, the Commission finds that the proposed rule change is consistent with the requirements of the Act and the rules and regulations thereunder applicable to a national securities exchange.<sup>9</sup> In particular, the Commission finds that the proposal is consistent with Section 6(b)(5) of the Act,<sup>10</sup> which

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<sup>8</sup> The Exchange has committed to file a proposed rule change under Section 19(b)(3)(A) of the Act to identify the options classes to be included in the second expansion.

<sup>9</sup> In approving this proposed rule change, the Commission has considered the proposed rule's impact on efficiency, competition, and capital formation. See 15 U.S.C. 78c(f).

<sup>10</sup> 15 U.S.C. 78f(b)(5).

requires, among other things, that the rules of an exchange be designed to promote just and equitable principles of trade, to remove impediments to and perfect the mechanism of a free and open market and a national market system, and, in general, to protect investors and the public interest.

On June 28, 2005, the Pacific Exchange (now known as NYSE Arca) announced its intention to begin quoting and trading all listed options in penny increments.<sup>11</sup> In June 2006, to facilitate the orderly transition to quoting a limited number of options in penny increments, Chairman Cox sent a letter to the six options exchanges urging the exchanges that chose to begin quoting in smaller increments to plan for the implementation of a limited penny pilot program to commence in January 2007.<sup>12</sup> All six of the options exchanges submitted proposals to permit quoting a limited number of classes in smaller increments, and, in January 2007, the Commission approved those proposals to implement the current Pilot Program.<sup>13</sup> The exchanges have now submitted proposals to extend and further expand the Pilot.

The continued operation and phased expansion of the Pilot Program will provide further valuable information to the exchanges, the Commission, and others about the impact of penny quoting in the options market. In particular, extending and expanding the Pilot Program as proposed by the Exchange will allow further analysis of the impact of penny quoting in the Pilot

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<sup>11</sup> PCX News Release, "Pacific Exchange to Trade Options in Pennies," June 28, 2005.

<sup>12</sup> Commission Press Release 2006-91, "SEC Chairman Cox Urges Options Exchanges to Start Limited Penny Quoting," June 7, 2006.

<sup>13</sup> See Securities Exchange Act Release Nos. 55155 (January 23, 2007), 72 FR 4741 (February 1, 2007) (SR-BSE-2006-49); 55162 (January 24, 2007), 72 FR 4738 (February 1, 2007) (Amex-2006-106); 55154 (January 23, 2007), 72 FR 4743 (February 1, 2007) (SR-CBOE-2006-92); 55161 (January 24, 2007), 72 FR 4754 (February 1, 2007) (SR-ISE-2006-62); 55156 (January 23, 2007), 72 FR 4759 (February 1, 2007) (SR-NYSEArca-2006-73); and 55153 (January 23, 2007), 72 FR 4553 (January 31, 2007) (SR-Phlx-2006-74). As noted above, supra note 6 and accompanying text, the current Pilot is scheduled to expire on September 27, 2007.

classes over a longer period of time on, among other things: (1) spreads; (2) peak quote rates; (3) quote message traffic; (4) displayed size; (5) "depth of book" liquidity; and (6) market structure. The Exchange has committed to provide the Commission with periodic reports, which will analyze the impact of the expanded Pilot Program. The Commission expects the Exchange to include statistical information relating to these factors in its periodic reports.

An analysis of the current Pilot shows that the reduction in the minimum quoting increment has resulted in narrowing the average quoted spreads in all classes in the Pilot.<sup>14</sup> A reduction in quoted spreads means that customers and other market participants may be able to trade options at better prices. The reduction in spreads also has led the exchanges to reduce or eliminate their exchange-sponsored payment-for-order-flow programs.<sup>15</sup> The Commission believes that the proposed rule change is designed to continue the narrowing of spreads.

The Commission notes that, as anticipated, the Pilot has contributed to the increase in quotation message traffic from the options markets. However, while the increase in quotation message traffic is appreciable, it has been manageable by the exchanges and the Options Price Reporting Authority, and the Commission did not receive any reports of disruptions in the dissemination of pricing information as a result of quote capacity restraints. Although the

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<sup>14</sup> See Box, Penny Pilot Data Review, June 18, 2007 ("Box Report"). See also Amex, Penny Quoting Pilot Program Report, June 8, 2007 ("Amex Report"); CBOE, Penny Pilot Report, June 1, 2007 ("CBOE Report"); ISE, Penny Pilot Analysis, May 23, 2007 ("ISE Report"); NYSE Arca Options, Understanding Economic and Capacity Impacts of the Penny Pilot, May 31, 2007 ("NYSE Arca Report"); and Phlx, Options Penny Pricing Pilot Report, May 31, 2007 ("Phlx Report").

<sup>15</sup> See Securities Exchange Act Release Nos. 55328 (February 21, 2007), 72 FR 9050 (February 28, 2007) (SR-Amex-2007-16); 55197 (January 30, 2007), 72 FR 5772 (February 7, 2007) (SR-BSE-2007-02); 55265 (February 9, 2007), 72 FR 7697 (February 16, 2007) (SR-CBOE-2007-11); 55271 (February 12, 2007), 72 FR 7699 (February 16, 2007) (SR-ISE-2007-08); 55223 (February 1, 2007) 72 FR 6306 (February 9, 2007) (SR-NYSEArca-2007-07); and 55290 (February 13, 2007), 72 FR 8051 (February 22, 2007) (SR-Phlx-2007-05).

Commission anticipates that the proposed expansion of the Pilot Program may contribute to further increases in quote message traffic, the Commission believes that the Exchange's proposal is sufficiently limited such that it is unlikely to increase quote message traffic beyond the capacity of market participants' systems and disrupt the timely receipt of quote information. The Commission also notes that the Exchange has adopted and will continue to utilize quote mitigation strategies that should mitigate the expected increase in quote traffic.<sup>16</sup>

Overall trading activity in the options markets is very concentrated, with a relatively few options classes accounting for a significant share of total options volume. The Exchange's proposal, which will expand the Pilot to include a limited number of options from among the most actively-traded classes (based on average trading volume), will provide an opportunity for reduced spreads where the greatest amount of trading occurs, thus maximizing the economic benefit of the Pilot while minimizing the impact of increased quote traffic.

One commenter suggests that relative trading volume is the measure that should be used to assess the success of quoting in smaller increments.<sup>17</sup> The commenter reported the percentage change in the relative trading volume before and after the Pilot for each of the thirteen classes.<sup>18</sup> The commenter's data shows an increase in relative trading volume for QQQQ, IWM, SHM, AMD, and SUNW, and a decrease in relative trading volume for MSFT, INTC, GE, TXN, A,

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<sup>16</sup> See Securities Exchange Act Release No. 55073 (January 9, 2007), 72 FR 2047 (January 17, 2007) (SR-BSE-2007-49). Further, the Commission notes that the other options exchanges participating in the Pilot also have adopted and will continue to utilize quote mitigation strategies.

<sup>17</sup> See Citadel Letter, *supra* note 4.

<sup>18</sup> The commenter measures the relative trading volume of a class as that class' trading volume as a percentage of total OCC volume. The change in relative trading volume is the relative trading volume from date of entrance into the Pilot to August 27, 2007 divided by the relative trading volume from November 1, 2006 through entrance in the Pilot.

CAT, WFMI and FLEX. The commenter believes the data shows that the Pilot works well for index and sector products, but smaller increments caused a decline in the relative trading volume for single stock options. The commenter argues that much of the decrease in relative trading volume in Pilot classes is a symptom of the decrease in displayed size available for those classes. On the basis of a decline in the relative trading volume, the commenter argues that single stock option classes should be removed from the Pilot and replaced with liquid index or sector option classes.

Much of the recent growth in options volume has been in the large index and ETF products, such as the SPX, SPY, and the QQQQ. As their relative trading volume increases, the aggregate relative trading volume of other products necessarily declines (although actual volume levels may increase). For example, the SPX, SPY, QQQQ, and IWM accounted for 16.1% of total options volume in the four months before the pilot and rose to 21.7% of volume in the five months after the pilot.<sup>19</sup> By definition, the relative trading volume of all other classes (Pilot and non-Pilot) falls from 83.9% in the pre-Pilot period to 78.3% in the post-Pilot period. Using the commenter's numerical approach, the relative market share of SPX, SPY, QQQ, and IWM increased by 34.8%  $((21.7\%/16.1\%)-1)$ . In contrast, the relative trading volume of all other classes fell by 6.7%  $(78.3/83.9\%)-1$  in the post-Pilot period compared to the pre-Pilot period. Thus, in addition to the random variation in relative trading volume that occurs over time, there was an overall decline in the relative trading volume of issues outside the four largest index and ETF options, although their actual aggregate volume levels increased.

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<sup>19</sup> The pre-Pilot period consists of the four months before the Pilot commenced (October 1 – January 25, 2007) and the post-Pilot period consists of the five months after the Pilot commenced (February 9, 2007 – June 30, 2007). The two week period when the Pilot classes were introduced are excluded from the analysis.

More specifically, for the 100 and 500 most active classes,<sup>20</sup> relative trading volume fell for 63% and 56%, respectively, of non-Pilot classes. In the Pilot classes, seven, or 54%, of the thirteen Pilot classes had a decline in market share and seven, or 70%, of the ten single stock option classes had a decline in relative trading volume.<sup>21</sup>

The Commission does not believe that the data at this time supports the conclusion that a decrease in relative trading volume in the Pilot classes is due to a reduction of the minimum quoting variation. In fact, the data demonstrates that declines in relative trading volume were not limited to stocks included in the Pilot, and substantial declines in relative trading volume, as defined by the commenter, describe a large portion of classes that were not in the Pilot. Therefore, based on the data reviewed to date, the Commission cannot conclude that the Pilot has had an adverse impact on volume in the Pilot securities. Therefore, the Commission believes that the Exchange's proposal to select additional classes from among the most actively-traded options has a reasonable basis and is consistent with the Act.<sup>22</sup>

The Commission believes that the impact of smaller increments on trading volume is one of the more difficult aspects of the Pilot to assess, and notes that the exchange reports did not

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<sup>20</sup> All of the thirteen Pilot classes fall into the 500 most actively-traded, and nine are within the 100 most actively-traded group.

<sup>21</sup> The change in relative trading volume for the median stock for the top 500 (100) classes is -8% (-13%), compared to a change of -3% for the thirteen Pilot stocks and a change of -24% for the ten single stock options. The Commission notes that, with a Pilot sample size of thirteen or ten, these statistics will be highly sensitive to the performance of one or two classes.

<sup>22</sup> The Commission notes that the classes the commenter specifically recommends for inclusion in the expanded Pilot - SPY, DIA, OIH, XLF, and XLE - are among classes proposed by the Exchange to be included in the Pilot Program beginning September 28, 2007.



show a clear change in trading volume.<sup>23</sup> While some industry participants expressed disappointment that volume had not increased, the bid-ask spread is only one factor that influences volume. Other factors that impact option volume are trading activity in the underlying security and in related products, volatility in the market and in the underlying security, as well as firm and market specific information and events. The Commission believes that the addition of more securities in the next phase will increase the sample size and should help in further analysis of such issues.

The commenter also expressed concern that the quoted size in the Pilot classes is dropping to levels that are "sub-optimal" or "inadequate" for institutional size orders, and recommended that the Commission carefully evaluate the impact of penny quoting on liquidity before allowing the exchanges to expand the Pilot.<sup>24</sup> The Commission fully agrees that the impact of the Pilot on displayed size, as well as non-displayed "depth of book," and the impact of any decreased size on market and execution quality, is an area that should be carefully analyzed as the Pilot continues. The Commission also recognizes that the exchange reports show there has, in fact, been a reduction in the displayed size available in the Pilot classes.<sup>25</sup> The Commission is not at this time, however, able to conclude that this decrease has caused a decrease in trading volume or relative trading volume, or other harm to the market, as a result of the Pilot Program. The Commission does, however, expect the Exchange to include in its reports an analysis of the market impact of reducing the minimum price increment, particularly on the

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<sup>23</sup> See Amex Report, supra note 14, at 6-7; CBOE Report, supra note 14, Attachment at pages 5-6; ISE Report, supra note 14, at 17-20; and NYSE Arca Report, supra note 14, at 15.

<sup>24</sup> See Citadel Letter, supra note 4.

<sup>25</sup> See Amex Report, supra note 14, at 6; BOX Report, supra note 14, at 2; CBOE Report, supra note 14, at Attachment page 2; ISE Report, supra note 14, at 7-8; NYSE Arca Report, supra note 14, at 9-10; and Phlx Report, supra note 14, at 3-4 and 6-7.

ability of market participants to effectively execute large-sized orders. The Commission will analyze the information provided in the Exchange's reports, in conjunction with the information provided by other exchanges and market participants, to inform its evaluation and consideration of any exchange's proposed further expansion of the Pilot.

The commenter further noted, to the extent that additional size may be available below the best bid or offer,<sup>26</sup> options market participants discount the value of such liquidity because it is generally not transparent to the market and is not easily accessible even if displayed.<sup>27</sup> The commenter noted that, unlike in the equities markets, market participants cannot quickly sweep multiple markets through multiple price levels to reach such additional liquidity. The Commission encourages the exchanges to consider measures that would facilitate access to depth of book quotes.

Finally, the commenter recommends removing the poorest performing single stock names from the Pilot and replacing them with liquid index or sector products.<sup>28</sup> The Commission agrees that there should be a mechanism for removing option classes from the Pilot. The Commission specifically requested comment in the notice of the Exchange's proposal on: (1)

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<sup>26</sup> Only two exchanges provided information on "depth of book" on their markets in the Pilot classes. See NYSE Arca Report at 8-10, supra note 14, and ISE Report, supra note 14, at 9. ISE reported that the average total size of all quotes on its book at all price levels, weighted for volume, for all thirteen Pilot classes was reduced by 61%. See ISE Report, supra note 14, at 9. NYSE Arca compared liquidity resident in its book within the legacy minimum price variation to pre-Pilot top of book liquidity and reported that volume weighted liquidity across all thirteen Pilot classes decreased 1%. See NYSE Arca Report, supra note 14, at 8.

<sup>27</sup> See Citadel Letter, supra note 4. The Commission notes that currently only NYSE Arca makes available quotes and orders on its book below the NBBO. See <http://www.nysedata.com/nysedata/InformationProducts/ArcaBook/tabid/293/Default.aspx>. The Commission anticipates that to the extent this display of information proves to be valuable to the options market as a whole, other exchanges may choose to make this information available as well.

<sup>28</sup> See supra, note 22.

whether there are circumstances under which classes included in the Pilot should be removed; (2) if so, what factors should be considered in making the determination to remove a class from the Pilot, specifically whether an objective standard should be used or whether a more subjective analysis should be allowed; (3) what concerns might arise by removing a class from the Pilot, and how could such concerns be ameliorated; (4) how frequently should such an analysis be undertaken, or should the evaluation be automated; and (5) if a class is to be removed from the Pilot, how much notice should be given to market participants that the quoting increment will change, but did not receive any comments. The Commission will continue to consider comments on how to fairly and objectively determine if a class should be removed from the Pilot.<sup>29</sup> Finally, to the extent that the Exchange files a proposed rule change to further expand the Pilot, the Commission urges it to include in any such proposal a methodology for removing classes from the Pilot.

For the reasons discussed above, the Commission believes that the proposed rule change is consistent with the Act.

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<sup>29</sup> One commenter, stating that some exchanges would like to switch some options back from pennies to nickels, noted that a penny is the minimum increment and that there is no obligation to quote a one cent spread; participants are simply allowed to do so, and can quote a wider spread. See Kohen Letter, supra note 4. The Commission notes that any mechanism for removing option classes from the Pilot must meet the requirements of the Act.

IV. Conclusion

IT IS THEREFORE ORDERED, pursuant to Section 19(b)(2) of the Act,<sup>30</sup> that the proposed rule change (SR-BSE-2007-40), be, and hereby is, approved on a pilot basis, which will end on March 27, 2009.

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.<sup>31</sup>

Florence E. Harmon  
Deputy Secretary

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<sup>30</sup> 15 U.S.C. 78s(b)(2).

<sup>31</sup> 17 CFR 200.30-3(a)(12).